

REMARKS

Status of the claims

The sole pending rejection is the rejection of Claims 1 and 2 under 35 U.S.C. §103(a) as allegedly being unpatentable over Sawada et al. (U.S. Patent No. 5,751,027) in view of Kuroda et al. (U.S. Patent No. 5,831,296) (hereinafter “Sawada” and “Kuroda,” respectively). The position set forth in the Office Action is based on Figure 1 of Sawada. Applicants respectfully traverse because the presently claimed invention is not anticipated by or rendered obvious by the cited references.

Applicants respectfully submit that Figure 1 of Sawada does not disclose elements of the presently claimed invention, contrary to the position set forth in the Office Action. In particular, Sawada (1) does not disclose or suggest the presently recited AlGaAs layer containing n-type impurities as an electron supplying layer; (2) does not disclose or suggest that the undoped GaAs layer is in contact with an undoped AlGaAs layer; and (3) does not disclose or suggest that the n-AlGaAs and AlGaAs layers are in contact with each other.

The present claims relate to a compound semiconductor epitaxial substrate for use in a strain channel high electron mobility field effect transistor, comprising an InGaAs layer as a strain channel layer and an AlGaAs layer containing n-type impurities as an electron supplying layer, wherein said InGaAs layer has an electron mobility at room temperature of $8300 \text{ cm}^2/\text{V}\cdot\text{s}$ or more. Undoped GaAs layers having a thickness of 4 nm or more each are laminated respectively in contact with a top surface and a bottom surface of said strain channel layer. The GaAs layer in contact with the bottom surface of said strain channel layer is a spacer layer. In addition, the undoped GaAs layer is further in contact with an undoped AlGaAs layer and the AlGaAs layer containing n-type impurities is in contact with said undoped AlGaAs layer.

First, Sawada does not disclose or suggest the presently recited AlGaAs layer containing n-type impurities as an electron supplying layer. The Office Action points to element [6] in Figure 1 of Sawada as disclosing this element, but element [6] in Figure 1 is n-GaAs, not n-AlGaAs. In fact, nowhere in Figure 1 does a layer of n-AlGaAs exist.

Second, Claim 1 recites that the undoped GaAs layer is in contact with an undoped AlGaAs layer. This arrangement of layers is not present in Figure 1 in Sawada. The Office Action incorrectly asserts that undoped GaAs layer [5] is in direct contact with undoped AlGaAs layer [7] “by way of [layer] [6].” The Office Action’s position that layer [5] is “in contact with” layer [7] is incorrect because layer [5] is actually in contact with layer [6], which lies between layers [5] and [7].

Finally, the Office Action is also incorrect that Figure 1 in Sawada discloses that the n-AlGaAs and AlGaAs layers are in contact with each other, since the Examiner points to layer [6], which is a n-GaAs layer, rather than a n-AlGaAs layer.

Kuroda fails to remedy the above deficiencies in Sawada, and therefore this combination of references does not render obvious the presently claimed invention.

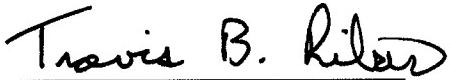
Applicant therefore respectfully requests the reconsideration and withdrawal of this § 103 rejection.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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